

PATENT ABSTRACTS OF JAPAN

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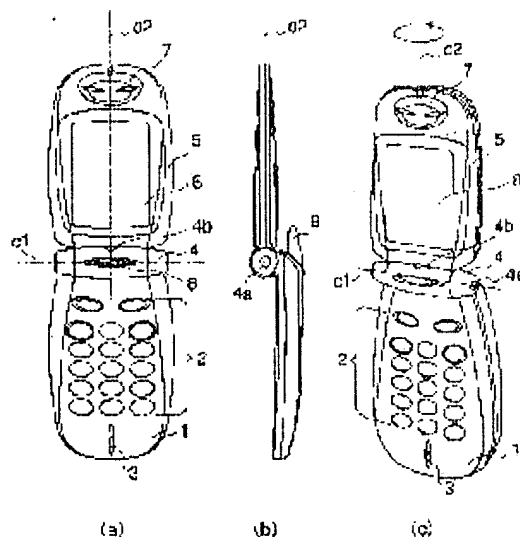
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(54) PORTABLE RADIO COMMUNICATION EQUIPMENT

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a foldable portable radio communication equipment which can make the incoming call response of a telephone in a state where a cover part is closed and can correspond especially to a non-voice service function except for a telephone function.

SOLUTION: A hinge part 4 connecting a telephone set main body part 1 and the cover part 5 so that they can freely be opened/closed is made to be orthogonal two axis-type structure. When a face where a display part 6 exists installed in the cover part 5 is made to be an upper face and it is closed, the display of character information in the non-voice service function except for a telephone can always be viewed even if the cover part 5 is not opened and a processing operation can be preformed.



LEGAL STATUS

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] Drawing showing the condition that the 1st revolving shaft of a hinge region opened the covering device of the pocket mold radio communication equipment in the gestalt of 1 operation of this invention

[Drawing 2] The perspective view showing the condition of opening, and having rotated the covering device of the pocket mold radio communication equipment in the gestalt of 1 operation of this invention around the 2nd revolving shaft of a hinge region continuously with the 1st revolving shaft of a hinge region

[Drawing 3] Drawing showing the condition of having closed the covering device of the pocket mold radio communication equipment in the gestalt of 1 operation of this invention with the 1st revolving shaft of a hinge region

[Drawing 4] Drawing showing the example of the display screen in each mode of operation of the display section in the condition that the 1st revolving shaft of a hinge region opened the covering device of the pocket mold radio communication equipment in the gestalt of 1 operation of this invention

[Description of Notations]

- 1 Body Section of Telephone
- 2 Key Stroke Section
- 3 Microphone Section
- 4 Hinge Region
- 5 Covering Device
- 6 Display Section
- 7 Loudspeaker Section
- 8 Scrolling Key
- 9 Antenna
- 10 Mode Selection Screen
- 20 Telephone Sending-and-Receiving Screen
- 30 Electronic Mail Screen

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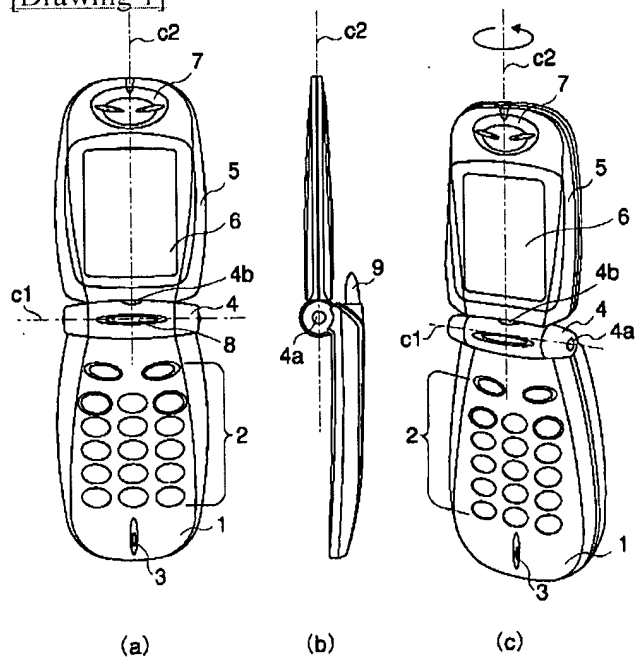
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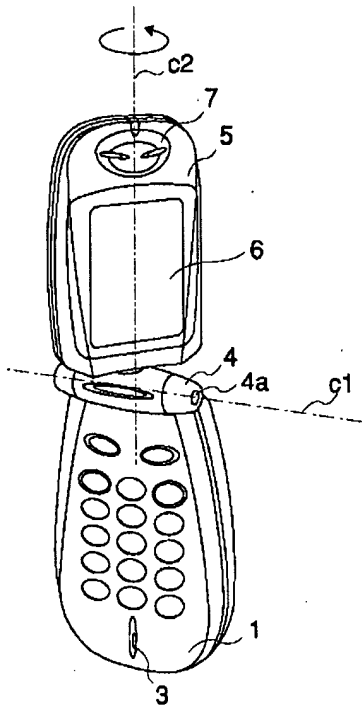
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DRAWINGS

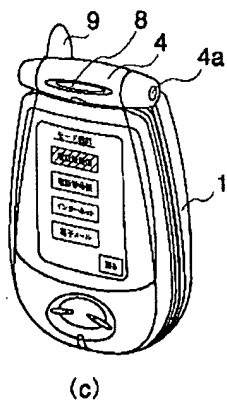
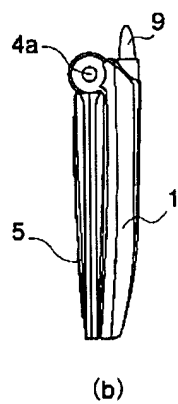
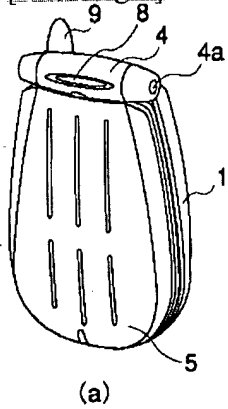
[Drawing 1]



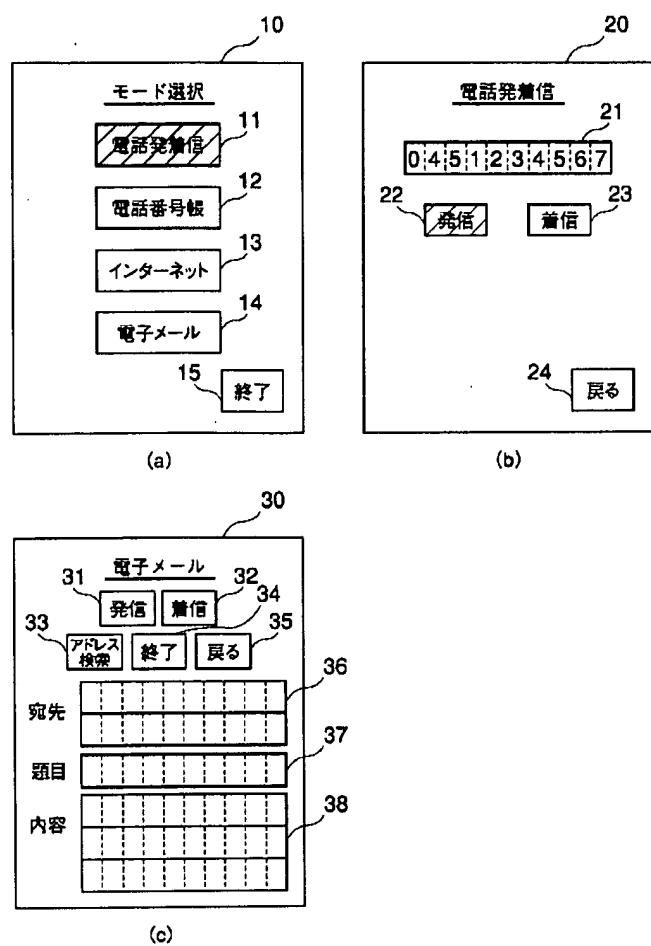
[Drawing 2]



[Drawing 3]



[Drawing 4]



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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] Especially this invention relates to the pocket mold radio communication equipment of a double fold mold about pocket mold radio communication equipments, such as a cellular phone and PHS.

[0002]

[Description of the Prior Art] Conventionally, in pocket mold radio communication equipments, such as a cellular phone and PHS, the display sections, such as a liquid crystal display, are prepared as a display. Especially, in the pocket mold radio communication equipment of a double fold mold, there is the key stroke section by which the dialing key etc. was arranged in the top face of the body section of telephone, and the display section is arranged by the covering device connected by the body section of telephone, and the hinge region possible free [closing motion]. At the time (at the time of carrying) of un-talking over the telephone, it was made double fold, and said covering device is laid on top of the top face of said body section of telephone. At this time, said display section becomes inside said covering device, and is not visible from the outside. On the other hand, if said covering device is opened at the time of a message, coincidence can be made to expose the display section of the key stroke section of the top face of said body section of telephone, and said covering device outside. At this time, the back light of the display section of said covering device lights up, and the partner telephone number inputted from said key stroke section is indicated legible at the time of dispatch.

[0003] Moreover, if a message is received in the condition of having closed said covering device, a ring tone will sound, if said covering device is opened there, the back light of the display section can light up and the display of the phase hand telephone number or a phase hand name can be read.

[0004]

[Problem(s) to be Solved by the Invention] However, by pocket mold radio-communication-equipment telephone of 2 conventional crease molds, since it is in the condition of having usually closed said covering device, arrival of the mail will not be detected without generating of a ring tone at the time of arrival of the mail, a covering device is opened, and response actuation is started. Dispatch actuation is started by exposing the key stroke section which opened the covering device and was prepared in the top face of the body section of telephone on the other hand also at the time of dispatch, carrying out dialing key actuation, and inputting the partner telephone number. Thus, in any case, by pocket mold radio-communication-equipment telephone of 2 conventional crease molds, the covering device had to be opened at the time of dispatch at the time of arrival of the mail.

[0005] Moreover, the covering device was opened in spite of having not necessarily operated the key stroke section to non-voice service of functions other than the usual telephone function, for example, the reference function of a telephone number book, the browser ability which used the Internet connectivity as the base, an electronic mail function, etc. Thus, by pocket mold radio-communication-equipment telephone of 2 conventional crease molds, in spite of having made it 2 creases with much trouble and having attained the miniaturization, there was a trouble of not utilizing the merit effectively.

[0006] This invention can perform the arrival-of-the-mail response of a telephone also in the condition of being able to cope with this trouble, and said covering device having been closed, having made it 2 creases, and having made it small, and aims at offering the pocket mold radio communication equipment of 2 crease molds which can also cope with the non-voice service of those other than a telephone function especially.

[0007]

[Means for Solving the Problem] In order to attain said purpose, the pocket mold radio communication equipment of this invention Connect the body section of telephone, the covering device which has a display means, and said body section of telephone and said covering device, and it has the hinge region which makes it possible to turn up and double said covering device with the top face of said body section of telephone. Said hinge region has the 1st revolving shaft and the 2nd revolving shaft which intersects perpendicularly with it. Around the 2nd revolving shaft, said covering device can be rotated and opens said covering device with said 1st revolving shaft of said hinge region. Since said covering device is rotated with said 2nd revolving shaft of said hinge region, when it closes, it has the configuration with which the top face of said covering device before said 1st revolving shaft opens turns up on the top face of said body section of telephone, and is united with it.

[0008] If a condition is closed and carried out with the 1st revolving shaft of a hinge region after making it rotate around the 2nd revolving shaft which intersects perpendicularly with the 1st revolving shaft when it is made double fold, the 1st revolving shaft of a hinge region opens so that the display section of a covering device may be seen from the condition which piled up and closed the display section of a covering device on the top face of the body section of telephone, and then closing a covering device by this configuration, the display section of a covering device will become the outside of a covering device. Therefore, in the condition of the covering device having been closed, having made it 2 creases, and having made it small, the display section of a covering device sees immediately and the thing of it can be carried out.

[0009] Moreover, the pocket mold radio communication equipment of this invention has the configuration which has a display-control means to control said display means to said hinge region.

[0010] By this configuration, as for the display-control means of a hinge region, actuation becomes possible also in the condition which opened the covering device, or the condition of having been closed.

[0011] Moreover, as for the pocket mold radio communication equipment of this invention, said display-control means has the configuration it is [configuration] the scrolling key which enables scrolling of a screen in an one direction or the direction of plurality.

[0012] A covering device is rotated around the 2nd revolving shaft which intersects perpendicularly with the 1st revolving shaft of not only the condition that opened the covering device but a hinge region by this configuration, and even if it makes the display section into a table and closed and carries out a condition with the 1st revolving shaft of a hinge region, actuation of the screen display of the display section can be performed with the display-control means of a hinge region.

[0013]

[Embodiment of the Invention] Hereafter, the operation gestalt of this invention is explained to a detail with reference to a drawing.

[0014] Drawing 1 (a) is a top view, drawing 1 is drawing showing the condition that the 1st revolving shaft of a hinge region opened the covering device of the pocket mold radio communication equipment in 1 operation gestalt of this invention, and drawing 1 (c) is [drawing 1 (b) is a side elevation and] a perspective view in the condition that the 1st revolving shaft of a hinge region opened the covering device of the pocket mold radio communication equipment in said operation gestalt.

[0015] Drawing 2 is the perspective view showing the condition of opening, and having rotated the covering device of the pocket mold radio communication equipment in the gestalt of 1 operation of this invention around the 2nd revolving shaft of a hinge region continuously with the 1st revolving shaft of a hinge region.

[0016] Drawing 3 is drawing showing the condition of having closed the covering device of the pocket mold radio communication equipment in the gestalt of 1 operation of this invention with the 1st

revolving shaft of a hinge region. Drawing 3 (a) It is the perspective view showing the condition of having ****ed the display section of the covering device of said pocket mold radio communication equipment inside, and having closed with the 1st revolving shaft of said hinge region. Drawing 3 (b) It is a side elevation in said condition of having closed, and after drawing 3 (c) opens, and it rotates the covering device of the pocket mold radio communication equipment in said operation gestalt 180 degrees around the 2nd revolving shaft of a hinge region continuously with the 1st revolving shaft of a hinge region, it is a perspective view in the condition of having closed with the 1st revolving shaft of a hinge region.

[0017] Drawing 4 (a) is drawing showing the example of the menu screen of a mode-selection display of a display, drawing 4 is drawing showing the example of the display screen in each mode of operation of the display section in the condition that the 1st revolving shaft of a hinge region opened the covering device of the pocket mold radio communication equipment in the gestalt of 1 operation of this invention, and drawing 4 (c) is [drawing 4 (b) is drawing showing the example in telephone sending-and-receiving mode of an actuation screen and] drawing showing the example of the electronic mail which is a non-voice service function of an actuation screen.

[0018] In drawing 1 , the key stroke section 2 by which the dialing key etc. was arranged is formed in the body section 1 of telephone of a pocket mold radio communication equipment. A dialing key has the configuration where it upheaved from the front face of the body section 1 of telephone so that it might be easy push.

[0019] Under the key stroke section 2, there is the microphone section 3, and the hole is prepared so that the microphone with which voice was built in the body section 1 of telephone may be reached.

[0020] The key stroke section 2 is connected to the body section 1 of telephone in the wrap covering device 5 through the hinge region 4. When it changes into the condition of having opened the covering device 5, the rectangle-like display section 6 is formed on it. At the time of telephone sending and receiving usual in the display section 6, information, such as the phase hand telephone number and a phase hand name, is displayed. The loudspeaker section 7 is above this display section 6, and puncturing which outputs the voice of the loudspeaker built in the covering device 5 is prepared.

[0021] As shown in (a) of drawing 1 , (b), and (c), a hinge region 4 has 1st revolving-shaft 4a which has a center line C1, and a covering device 5 is opened and closed with this shaft. Furthermore, a hinge region 4 has 2nd revolving-shaft 4b which has a center line C2. disconnection of the covering device 5 according [this 2nd revolving-shaft 4b] to 1st revolving-shaft 4a as shown in drawing 2 -- even when it is working, a covering device 5 is connected to a hinge region 4 so that the center line C1 of 1st revolving-shaft 4a of a hinge region 4 and the center line C2 of a covering device 5 may always cross at right angles, and a covering device 5 is made pivotable around a center line C2.

[0022] Even if it changes into the condition of having closed after rotating the covering device 5 180 degrees around 2nd revolving-shaft 4b in the condition of having opened further also in the condition of having opened also where a covering device 5 is closed in a hinge region 4, the scrolling key 8 which operates the screen display of the display section 6 is arranged so that it may come to a location always operational from a front face. By pressing the scrolling key 8 vertically and horizontally, and moving it, the information displayed on the below-mentioned display section can be scrolled, highlighting, such as an inverse video, can be moved, or input locations, such as an alphabetic character, can be moved now. Furthermore, the scrolling key 8 serves as the push switch, and can perform decision of processing, and actuation of activation by clicking.

[0023] the scrolling key 8 is like a trackball, a trackpad, a floating switch, and a joy stick -- especially if it is an one direction and the desirable thing which can scroll in the direction of plurality at least, it will not limit.

[0024] As shown in drawing 1 (b), the antenna 9 is formed in the location on the backside [a hinge region 4] in the upper part of the body section 1 of telephone, and it is in the condition of having reduced, at the time of carrying, but when it changes into the condition of having opened the covering device 5, extending without contacting a covering device 5 is possible.

[0025] The actuation is explained to a detail about the pocket mold radio communication equipment in 1

operation gestalt of this invention which has the above configurations.

[0026] It is changing into the condition of having made it double fold, having laid the covering device 5 on top of the top face of the body section 1 of telephone, and having closed the covering device 5, as [show / at the time (at the time of carrying) of un-talking over the telephone / in drawing 3 (a) and (b) / usually]. At this time, the display section 6 becomes inside a covering device 5, and is not visible from the outside.

[0027] On the other hand, if a covering device 5 is opened at the time of dispatch, coincidence can be made to be able to expose the display section 6 of the key stroke section 2 of the top face of the body section 1 of telephone, and a covering device 5 outside, the key stroke section 2 can be operated, and dispatch actuation can be performed. Moreover, if a message is received in the condition of having closed the covering device 5, a ring tone will sound, a covering device 5 will be opened there, the key stroke section 2 will be operated, and arrival-of-the-mail actuation will be performed. At this time, the display of the phase hand telephone number or a phase hand name etc. is displayed on the display section 6.

[0028] Where a covering device 5 is opened, the mode selection screen 10 as shown in drawing 4 (a) is usually displayed on the display section 6 of a covering device 5. The icon which shows non-voice service modes of operation other than the usual telephone sending-and-receiving mode of operation 11, such as the telephone number book mode 12, the Internet mode 13, and the electronic mail mode 14, is displayed. In the initial state, the inverse video of a specific thing, for example, the icon of the telephone sending-and-receiving mode of operation 11, is carried out to other mode-of-operation icons among the icons which show said each mode of operation (the slash is drawn in drawing 4 (a)).

[0029] If it carries out rotation actuation of the scrolling key 8 in changing the mode of operation to choose, the part of said inverse video can make it move to the location of other mode-of-operation icons, if the scrolling key 8 is clicked there, decision of the mode of operation will be made and the next processing screen will be displayed.

[0030] If the scrolling key 8 is clicked as it is when the usual telephone sending-and-receiving mode of operation 11 is chosen, the telephone sending-and-receiving screen 20 will be displayed, and the actuation icon of the telephone number display area 21, the dispatch icon 22, and the arrival-of-the-mail icon 23 will be displayed. In dispatch, if the numerical keypad (not especially shown in the key stroke section 2) of the key stroke section 2 of the body section 1 of telephone is pushed and the phase hand telephone number is inputted Since the phase hand telephone number as shown in the telephone number display area 21 of the display section 6 at drawing 4 (b) is displayed, dispatch actuation will be started, if rotation actuation of the scrolling key 8 is carried out, and the inverse video of the dispatch icon 22 displayed on the display section 6 is carried out and it clicks on it. In addition, the initiation key (not especially shown in the key stroke section 2) of the key stroke section 2 of the body section 1 of telephone can also be pressed and sent instead of clicking on the dispatch icon 22 displayed on the display section 6.

[0031] In arrival of the mail, if it is in the condition which closed the covering device 5 and there is arrival of the mail, a ring tone will sound, rotation actuation of the scrolling key 8 is carried out, and the inverse video of the arrival-of-the-mail icon 23 which the phase hand telephone number was displayed on the display section 6 when the covering device 5 was opened, and was displayed on the display section 6 is carried out, and if it clicks, it will enter to arrival-of-the-mail actuation. In addition, a message becomes possible even if it presses the initiation key (not especially shown in the key stroke section 2) of the key stroke section 2 of the body section 1 of telephone instead of clicking on the arrival-of-the-mail icon 23 displayed on the display section 6.

[0032] Next, the case of non-voice service is explained. For example, if rotation actuation of the scrolling key 8 is carried out, the inverse video of the icon in the electronic mail mode 14 is carried out in the mode selection screen 10 shown in drawing 4 (a) and it clicks when performing an electronic mail, the electronic mail screen 30 as shown in the display section 6 at drawing 4 (c) will be displayed. If a phase hand's mail address, a message sentence, etc. are inputted from the key stroke section 2 of the body section 1 of telephone and it clicks on the dispatch icon 22, electronic mail transmission will be

performed. The initiation key of the key stroke section 2 of the body section 1 of telephone may be pressed instead of clicking on the dispatch icon 22 at this time.

[0033] In addition, if a phase hand mail address is beforehand registered into a telephone number book, and is placed and a message sentence is also created and put on a message box, electronic mail dispatch will be attained, without operating especially the key stroke section 2 of the body section 1 of telephone. In electronic mail arrival, in the electronic mail screen 30 shown in drawing 4 (c), if it clicks on the arrival-of-the-mail icon 23, connection processing to a provider will be performed automatically and the message whose phase hand has received a message will be displayed. If it clicks on the icon 35 "returning", it will return to the mode selection screen 10 shown in drawing 4 (a). Furthermore, if it clicks on the termination icon 15, except the receive state of an electric wave, and the display of time, the display of the display section disappears and will be in the condition of the waiting for arrival of the mail.

[0034] Thus, when the sending and receiving of a telephone or actuation of non-voice mode service is completed and a covering device 5 is closed, If it closes without clicking on the termination icon 15 after rotating a covering device 5 180 degrees around 2nd revolving-shaft 4b of a hinge region 4, as shown in drawing 3 (c), the display section 6 of a covering device 5 in the condition of having exposed outside And it can close, displaying the mode selection screen 10 on the display section 6. if it is carrying in such the condition, it will state below -- as -- the sending and receiving of a telephone -- and it can respond to non-voice service quickly especially.

[0035] Since the phase hand telephone number will be displayed on a screen as shown in drawing 4 (b) if it be once made the telephone number book mode 12 and transmit the phase hand telephone number from the telephone number book in carrying out telephone dispatch in the condition of having changed into the condition of having exposed the display section of a covering device 5 outside, and having closed the lid as shown in drawing 3 (c), dispatch processing will be performed if it click on the dispatch icon 22. If there is arrival-of the mail in telephone arrival, a ring tone will occur and the message of arrival of the mail will appear on a screen (not especially shown).

[0036] Moreover, if it is made the input screen which chooses the electronic mail mode 14 and is shown in drawing 4 (c) in the mode selection screen 10 shown in drawing 4 (a), and a phase hand mail address is pulled out from a telephone number book, it displays on a screen and it clicks on the dispatch icon 22 in order to perform, the case, for example, electronic mail dispatch, of non-voice service processing, e-mail dispatch will be performed.

[0037] If it clicks on the arrival-of-the-mail icon 23 in the display screen of the electronic mail shown in drawing 4 (c) in electronic mail arrival, connection processing to a provider will be performed and the message whose phase hand has received a message will be displayed on a screen.

[0038] As mentioned above, if the display section 6 of a covering device 5 is closed in the condition of having exposed outside as shown in drawing 3 (c) when closing a covering device 5, about each function of transceiver actuation of a telephone, especially non-voice service, correspondence will become possible quickly, without opening a covering device 5.

[0039]

[Effect of the Invention] As explained above, when according to the pocket mold radio communication equipment by this invention it is made double fold, and the 1st revolving shaft of a hinge region opens so that the display section of a covering device can be seen from the condition which piled up and closed the display section of a covering device on the top face of the body section of telephone and then a covering device is closed If a condition is closed and carried out with the 1st revolving shaft of a hinge region after making it rotate 180 degrees around the 2nd revolving shaft which intersects perpendicularly with the 1st revolving shaft, the display section of a covering device will become the outside of a covering device. Therefore, in the condition of the covering device having been closed, having made it 2 creases, and having made it small, the display section of a covering device sees immediately, since things can be carried out, the arrival-of-the-mail response of a telephone can be performed, and non-voice service of those other than a telephone function can be coped with especially quickly.